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AUTHOR Brooks, Kenneth W.
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ABSTRACT

The guide details characteristics to provide architecturally accessible special education programs for handicapped students. Impetus for the accessibility movement is traced to legislation, including the Architectural Barriers Act and Sections 503 and 504 of the Rehabilitation Act of 1973. Planning features considered are the development of a master plan, identification of qualitative and quantitative needs, determination of resources, and staff involvement. A final section outlines specific accessibility requirements and current and proposed ANSI (American National Standard Specifications) standards for general interior considerations, specific areas within facilities, ground and floor surfaces, parking and passenger loading zones, ramps, stairs, elevators, drinking fountains, bathrooms, alarms, signage, telephone, and assembly areas. (CL)

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Facilities Planning Guide for Special Education Programs:

Pianning Accessibility for the Handicapped in Public Schools

By
Kenneth W. Brooks, Ph.D.
Director
Center for Professional Development
University of Kentucky

August 1979

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PREFACE

This manual was developed for NASDSE, Inc., by Dr. Kenneth Brooks, University of Kentucky. We wish to express our appreciation for his time and effort in this project.

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James R. Galloway
Executive Director

William V. Schipper
Associate Director

Michael E. Norman
Associate Director

NASDSE, Inc.

INTRODUCTION

Educational planning is emerging as a major legitimate role of school administrators in the United States. This document focuses on one type of planning in education: planning the physical environment for accessibility by all handicapped persons—students, faculty and staff—as well as improved public access. Such planning should be an integral part of both comprehensive ongoing facilities planning and full services planning for all handicapped students.

Full services planning refers to a systematic, integrated process that begins with the identification of handicapped students and culminates with the delivery of appropriate instructional activities and eventual reevaluation of the students. Most of the models developed for full service planning focus on the individual handicapped student's placement and programming. To be comprehensive, planning should include a parallel process considering physical access to programs. Decisions on student placement and on the instructional nature of the program cannot be made meaningfully without knowing whether facilities are accessible. An effective full service model thus clearly must be integrated with facilities analysis and planning efforts.

Intended Audience

With this focus, the guide should be of chief interest to administrative staff in local education agencies (LEAs) who have responsibility for full service planning for handicapped children, to assist them in achieving program accessibility.

The publication also will be useful to local school district administrators involved in basic planning for school facilities. The guide is written around the primary facility planning processes, and accessibility is simply one additional consideration to be introduced into existing facility planning processes.

A third group that will find the guide helpful is state education agency (SEA) staff charged with providing technical assistance to local school agencies both in programming for the handicapped and in school facilities planning. The guide provides the specific kind of information needed to help meet LEA requests for assistance. In addition, the publication may help each SEA evaluate its own facilities in terms of accessibility.

While written for and focused on public education, the guide describes planning processes that are applicable in other settings, such as private schools, colleges and universities, churches, hospitals, and nonschool government facilities facing similar concerns for accessibility. The approaches described should be transferable with little if any modification.

It should also be noted that requirements of accessibility not only benefit the handicapped but are equally beneficial to the total population. For example, nonskid surfaces on ramps, reasonable ramp gradients, adequate handrails, and recessed door mats may be required for the handicapped but they can also enable the nonhandicapped to function more safely and effectively.

Organization of the Guide

The guide is organized into three major parts. Part I, "Impetus for Change," highlights the pressures that resulted in the current mandate of accessibility for the handicapped. Particular emphasis is given to federal legislation and regulations that represent milestones in achieving that mandate.

Part II, "Planning for Accessibility," describes an approach to accessibility planning that assumes concern for integrating planning into traditional facility-planning processes. These processes and the integration of handicapped regulations are reviewed.

Part III, "Specific Requirements for Accessibility," describes standards for buildings, both as presently applied under existing specifications of the American National Standards Institute and as recommended in the proposed new ANSI standards. Sketches are provided to illustrate and clarify certain requirements.

In the Appendix, an Annotated Bibliography identifies a number of sources that can be used to supplement the overview presented here to obtain more detailed information on accessibility requirements and resources. Also included is an Accessibility Checklist to facilitate evaluation of a site and facility in terms of freedom from barriers and ease of access by handicapped persons.

I. IMPETUS FOR CHANGE

Common Questions About Accessibility Answered in Part I:

1. **What disabilities are meant by the general descriptor "handicapped?"**
2. **How did the mandate for accessibility come about?**
3. **What is the Architectural and Transportation Barriers Compliance Board?**
4. **Exactly what is required by Section 504 of the Rehabilitation Act of 1973?**
5. **What are the potential penalties for noncompliance with 504?**

The mandate to provide total accessibility for all handicapped children in educational programs evolved from an array of forces and issues over several decades. Most writers estimate that approximately 10 percent of school-age children are handicapped and need help not typically required by nonhandicapped children.

Handicapped in this context means students with speech, hearing, or vision problems as well as the physically or orthopedically handicapped, learning disabled, mentally retarded, health impaired, or emotionally disturbed. In more detail, a handicapped person is defined in the Section 504 regulations as any person who "(1) has a physical or mental impairment which substantially limits one or more life activities, (2) has a record of such an impairment, or (3) is regarded as having such an impairment." Under (1), this would include any person with a "physiological disorder or condition," a "cosmetic disfigurement," or an "anatomical loss," and includes such conditions as cancer, heart disease, diabetes, cerebral palsy, epilepsy and muscular dystrophy. Also included are persons with any "mental or psychological disorder" such as organic brain syndrome, or emotional illness. Under (2), persons with a history of mental illness, cancer in remission, or epilepsy under medical control would be included. Category (3) would include a person with a disfiguring scar, a limp, or any person who would be treated as being handicapped. Excluded from this definition are gifted students and those disadvantaged by social or economic conditions.

Of this significant portion of the school-age population, it is estimated that fewer than half were being served by public school agencies prior to 1975.

Also important is a definition of terms used in referring to accessibility. According to one recent publication, the following common definitions are generally agreed on for terms used in this regard:

Accessible is used to describe those facilities or parts of facilities which may be entered and used by individuals despite handicapping conditions. Accessibility includes responding to the needs of people with sight or hearing disabilities in addition to those with activity, manual or mobility impairments.

Barrier free refers to the complete removal, elimination or avoidance of those elements of the built environment that constitute obstacles preventing handicapped people from enjoying the full and free use of that environment. Characteristics of the built environment that do not meet the needs of sight or hearing impaired individuals are included in the category of "barriers."

Readily accessible has been established in courts as the concept of providing access for handicapped people that is of equal convenience with that provided for nonhandicapped users.

Reasonable accommodation is the adaptation of environment, schedules or requirements to adapt to the known physical or mental limitations of a handicapped applicant or employee. Reasonable accommodation may include making facilities used by employees readily accessible to and usable by handicapped persons, as well as job restructuring, part-time or modified work schedules, acquisition or modification of equipment or devices, the provision of readers or interpreters, and other similar actions.

Usable describes those aspects of the environment that allow use or operability by individuals with physical or sensory limitations.*

* From "Planning for Accessibility: A Guide to Developing and Implementing Campus Transition Plans," by Margaret Milner. 1978. Association of Physical Plant Administrators of Universities and Colleges.

Milestones Leading to Accessibility

Affirmative action groups attempting to improve accessibility for the handicapped began to succeed at state and local levels by the mid-1950s. Several states adopted legislation mandating that all new construction be totally accessible to the handicapped.

ANSI Standards

Nationally, the publication, "Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped," was issued in 1961 by the American National Standards Institute (ANSI). This 11-page statement of standards—known as ANSI A117.1—was developed under the co-sponsorship of the President's Committee on Employment of the Handicapped and the National Society for Crippled Children and Adults, field-tested by disabled students at the University of Illinois, and adopted by federal agencies and several states. ANSI reviewed and reaffirmed the standards in 1971. Over the years, a number of state and local codes were established exceeding the ANSI standards.

In 1974, the U.S. Department of Housing and Urban Development (HUD) initiated a research project at Syracuse University School of Architecture to revise the ANSI standards and extend them to residential environments as well as exterior site design, and to include the needs of persons with stamina and sensory disabilities as well as wheelchair users. The result was a greatly expanded and more detailed set of standards that was issued in final draft form for public review in June 1979. These standards are reprinted in Part III. After public review, the standards will be adopted formally by ANSI and will presumably be the basis for standards established by states and localities. After approval by the HEW Office of Civil Rights, the new ANSI standards are expected to become the standard for meeting requirements of Section 504 of the 1973 Rehabilitation Act, described below.

Vocational Rehabilitation Act

Another early milestone nationally following adoption of the original ANSI standards was the 1965 amendment to the Vocational Rehabilitation Act, which authorized establishment of the National Commission on Architectural Barriers. Persistent lobbying by public and nonprofit groups led to a Congressional mandate to eliminate architectural barriers. By this time, 24 states had enacted some legislation to guarantee accessibility to public buildings, but the state laws were fragmented and ineffective, rarely resulting in construction of barrier-free facilities. At the federal level, there was no executive order requiring federally-assisted projects to be free of barriers.

Architectural Barriers Act

The National Commission on Architectural Barriers reported to Congress in 1967 and recommended legislation requiring buildings financed with federal funds to be designed and constructed as to be accessible to the physically handicapped. The recommendation was enacted into law in August 1968 in P.L. 90-480, the Architectural Barriers Act of 1968. By this time, 34 states had enacted laws on architectural barriers.

Section 502 of the Rehabilitation Act of 1973 (P.L. 93-112) created the Architectural and Transportation Barriers Compliance Board (A&TBCB) to enforce the Architectural Barriers Act. The Board is governed by Cabinet level representatives of the following nine federal departments and agencies: Departments of Health, Education, and Welfare; Transportation; Housing and Urban Development; Labor; Interior; and Defense; General Services Administration; U.S. Postal Services; and Veterans Administration.

The Board has a permanent staff and executive director who carry out activities not only to enforce accessibility requirements but also to develop policies, programs, and public information efforts in support of the Board's compliance efforts and to encourage accessibility for all public buildings. An advisory committee or consumer advocacy panel, whose membership includes a majority of handicapped persons, provides guidance, advice and recommendations. In addition to ensuring compliance, the Board also investigates alternative approaches to architectural, transportation, and attitudinal barriers confronting handicapped persons, determines measures used by federal, state and local government agencies and nonprofit agencies to alleviate barriers, and promotes the use of the International Symbol of Accessibility by facilities which are fully accessible.

The Board is assisting other federal agencies in establishing review procedures that will ensure compliance with ANSI standards. It also has the power to initiate investigations or to respond to citizens' complaints concerning the failure of facilities to meet standards of accessibility. In 1974, the Board received authority to withhold or suspend federal funds for any facility not in compliance with the ANSI standards.

These developments on a national level have been matched by similar actions at the state level. In fact, all states today have legislation calling for elimination of architectural barriers in public buildings. A number of states have extended this requirement to make privately-owned but publicly used buildings and facilities acces-

sible to the handicapped. In addition, federal programs providing funds for constructing state and local community structures, such as schools, libraries, colleges, rehabilitation centers, and recreation facilities, have specific criteria and standards of accessibility built into the programs.

Sections 503 and 504

Sections 503 and 504 of the 1973 Rehabilitation Act carry forward the approach to accessibility still further.

Section 503 states that any federal contractor with a contract in excess of $2,500 must develop and implement an affirmative action plan to employ the handicapped. The obvious implication for schools is that facilities must be accessible not only for handicapped students but for handicapped staff as well.

Section 504 provides that handicapped persons cannot be discriminated against solely because of their handicapping condition. This is, in effect, a civil rights law to protect the handicapped minority of our population. The language in Section 504 is parallel to that used in Title VI of the Civil Rights Act of 1964, which applied to racial discrimination, and Title IX of the Education Amendments of 1972, which focused on sex discrimination. Section 504 states that: "No otherwise qualified handicapped individual in the United States . . . shall, solely by reason of his handicap be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Effects of Section 504 on Schools

In terms of schools, Section 504 clearly establishes that handicapped individuals cannot be denied access to schooling, but rather must be provided opportunities on the same basis as the nonhandicapped. Section 504 is also quite specific as it relates to sites and facilities; all new sites and facilities must be designed and constructed to be accessible to handicapped persons from the start, using the ANSI standards as minimal requirements for accessibility. It goes beyond new construction, however, and requires modifications of existing facilities to guarantee program accessibility by the handicapped.

Section 504 is somewhat unique in that it includes the requirement to correct pre-existing conditions, i.e., structures predating the effective date of the regulation. Other federal regulations and most state mandates ignore already functioning facilities. However, Section 504 does not require that every building or part of a building must be accessible but the program as a whole must be accessible. Structural changes to make the program accessible must be made only if alternatives, such as reassignment of classes or home units are not possible. But in attaining program accessibility, the school must be careful not to isolate or concentrate handicapped persons in settings away from nonhandicapped program participants.

Facility-Related Requirements of Section 504

The regulation for Section 504 of the Rehabilitation Act of 1973, issued by HEW Secretary Califano on April 28, 1977, has three sections that directly address the question of school buildings. These three sections form Subpart C—Program Accessibility.

The wording of Section 84.21 states: "No qualified handicapped person shall, because of inaccessibility, be denied benefits of a program or activity of a recipient (of federal financial assistance)."

Section 84.21 is a *general statement* requiring a public school district not to subject a handicapped person to discrimination because of inaccessible or unusable facilities. While this general statement does not require that all areas of every school facility be accessible, it does preclude the segregation of handicapped students into a single setting.

Section 84.22 deals with *existing facilities*. The intent of this section is to require a local school district to operate each activity or program so that, when viewed as a total offering, the activity or program is readily accessible to handicapped students. This provision cannot be satisfied by making one facility in a district accessible and housing all handicapped there. However, a school district can meet this mandate in a variety of ways, including some suggested in the regulation itself:

1. structural renovation or alteration of a facility,
2. redesigning of existing equipment,
3. reassignment of classes or other activities to accessible sites, buildings, or parts of building,
4. assignment of aides to help handicapped students reach an activity or program safely,
5. provision of home visits (although this alternative is discouraged since it isolates the pupil).

The Section 504 regulation specified that all LEAs were to satisfy accessibility requirements within 60 days. If structural changes are needed or facilities to be replaced, these have to be completed within three years or by May 1980. Furthermore, an LEA electing to make structural changes must establish a transition plan specifying existing limitations to accessibility; corrective steps to be taken including the schedule for each step, and the individual responsible for implementing the plan.

Section 84.23, dealing with *new construction*, requires all facilities begun after the regulation's effective date of June 3, 1977 to be designed and constructed in such a way as to make the facility accessible to and usable by handicapped persons. The requirement also applies to alterations, additions, or renovations that could affect access to and use of existing facilities. In the case of alterations, the regulation states that they shall meet the requirement "to the maximum extent

feasible," indicating that an occasional instance may be acceptable where it would be impractical or prohibitively expensive to make a building entirely barrier-free.

As noted earlier, the possible penalty for failure to comply with these regulations is a suspension or termination of federal funding. This suspension would involve only the specific shortcoming, not all of a school district's federal funding. For example, if accessibility were achieved for all traditional school age students but not for adults in education programs, the district could be denied federal funding related to adults but would not lose funding for the regular school program for children.

Enforcement is the responsibility of the Office of Civil Rights of HEW, and will be monitored actively for compliance. Clearly, now is the time for LEAs to ensure that their facilities are accessible to the extent required. The Office of Civil Rights also provides technical assistance programs to assist institutions in long-range planning and implementation in complying with the 504 regulations.

P.L. 91-230 and P.L. 94-142

P.L. 91-230, the Education of the Handicapped Act, 1972, and P.L. 94-142, the Education for All Handicapped Children Act of 1975, and subsequent court cases require an education agency to be diligent in identifying the handicapped, involving parents in program planning, developing individual education plans for the handicapped students, and placing students with nonhandicapped students to the maximum extent appropriate to their needs.

Essentially, these two laws accomplished two things: first, they were more specific and prescriptive concerning both affirmative action and in some cases remedial steps to be taken for handicapped students; and second, federal funding was made available to assist in the effort to meet the needs of the handicapped. Both of these represented significant moves forward for the handicapped.

II. PLANNING FOR ACCESSIBILITY: A Part of Ongoing Facilities Planning

Common Questions About Accessibility Answered in Part II:

1. **What is the process used to develop a master plan for a local school district?**
2. **How does planning for a specific building project take place?**
3. **Can handicapped accessibility be integrated into these planning processes?**
4. **What impact does maintenance of a facility have on the handicapped?**

While planning for accessibility as required by Section 504 of the 1973 Rehabilitation Act is essential for effective full service, it is clearly a part of more comprehensive facilities planning. Comprehensive facilities planning involves a continuing process of creating the most ideal physical environment for learning that is possible.

Attempts to create such an environment have been going on as long as organized schooling has existed; however, over the centuries views have changed. In the time of Socrates, an olive orchard close to nature and separated from the bustle of city life was acceptable for education; in colonial America, simple and stark protection from the natural elements was the only requirement for a school. Today, educators should not be satisfied with less than a physical environment that encourages and enhances learning. Section 504 simply adds a new dimension to planning for school facilities, that of accessibility for the handicapped.

Although some LEAs may plan to create a staff as part of the administrative office for special education with responsibility for planning accessibility, a more desirable approach might be to include accessibility in the concerns to be considered as part of the ongoing facilities-planning program. This is the approach described here, with an overview of facilities planning and an in-depth description of accessibility as related to facilities planning. Part III describes the requirements for accessibility in specific terms, while the Annotated Bibliography identifies sources that amplify this content and offer different approaches.

The facilities-planning processes examined here should be a regular part of the administration of all LEAs; if they are not, planning for accessibility may provide an incentive to encourage such activity.

Development of a Master Plan

Facilities planning generally includes three different kinds of planning: (1) formulation of a master multi-year plan to guide capital outlay and development over several years; (2) planning for a specific project such as new construction, additions, major renovations, or minor modifications; and (3) maintenance of existing facilities.

Developing a master plan for facilities typically calls for planning in specific terms for the next five to ten years and in general terms for years beyond that. Such a plan focuses on the school district level by:

1. determining the needs of the school district and resources available to meet those needs;
2. considering alternative strategies for matching needs with resources;
3. developing a strategy based on adopted alternatives.

Each of these components is examined in the next sections.

Identifying Needs

If a facilities plan is to satisfy needs, an initial task is to identify both qualitative and quantitative needs. The qualitative dimension of need refers to the program to be offered. *Program* has broad considerations that include the following questions:

- What will the LEA's goal be?
- What is the nature of the student population?
- What will be the basic approach to learning?
- How will students be grouped?
- What will the staffing pattern be?
- How will the schools be organized?

- Will there be levels such as elementary, middle, and high school?
- What will the nature of learning be at each level?
- What services—such as transportation, meals, and health services—will be offered?
- Will any special student populations (e.g., the gifted, handicapped, disadvantaged, or underachievers) receive unique services?
- Will any supplementary programs—such as athletics, or membership in clubs or musical organizations—be offered?

Each of these questions may lead to more specific queries to resolve such issues as student grouping. For example:

- Will students be grouped by age?
- Will students be grouped by ability or achievement, and if so, what criterion will be used?
- How many pupils should be in a school, class, and homeroom?
- Must racial balance be considered?

Qualitative needs should be described in a detailed, functionally-oriented statement identifying what is to occur during the next five to ten years, without undue consideration given to the past or present. This type of statement encourages a broader consideration of the school's role, in contrast to simply describing needs in terms of "three elementary schools, each with 25 classrooms."

The needs statement should also be somewhat idealistic, offering reasonable if slightly visionary goals rather than outlining a desired-program statement too constrained by past realities. It is best to identify a goal that can be supported with a rationale and then to work each year to achieve it.

Surprisingly few such program descriptions actually exist in local school districts. At best, the data may be available as parts of several documents. These can be compiled as the basis for creating a description, and while its use in this case is for planning school buildings such a description can also provide a starting point for personnel, financial, and curricular planning. Program descriptions must meet state and federal parameters for LEA programs including a mandate for accessibility. Local program statements should include the intention to make every activity and program accessible.

Quantitative needs involve the number of students to be served and should be determined using the approach or technique adopted by the LEA for projecting enrollments. Once a mathematical projection has been made, it is advisable to consider any major demographic changes that are occurring that would invalidate or affect the estimates. A change might be directly related to schools, such as court-ordered desegregation or competency-based grade placements and graduation, or it might be external to schools, such as construction of a federal housing project, opening of a major industry, or sudden availability of sewer systems to large undeveloped tracts.

Even a change such as the increased identification programs to locate unserved handicapped students, often included as part of full service planning, should be noted. The addition of these students will cause growth in enrollments for a few years, but would not necessarily extend beyond that brief time since it is unlikely that large numbers of unserved out-of-school handicapped persons would be identified every year.

Determining Resources

Knowing what is to be done in terms of the learning program and projecting the number of pupils to be served provides a comprehensive view of the needs to be met by educational facilities. Once these needs components have been identified, attention can shift to relevant available resources. Two types of resources typically can satisfy these needs: one, facilities that already exist, and second, capital outlay funds that can be used either to provide additional facilities or to modify, renovate, or add to existing school plants. Each of these resources should be evaluated separately.

An existing facility should be examined in terms of the desired program. A building, and every space within it, is neither good nor bad except in relation to some measuring device, the first of which should be the description of the desired program developed as part of the needs analysis. Intentionally, this approach makes facility assessment a very individualized process uniquely suited to district needs. For example, considerations for the size of resource rooms might include the number of children to use the room at the same time and the type of activities that would go on there, such as motor development.

It should be noted that not every building has to be totally accessible, although this would be ideal. Every program or activity must be accessible to the handicapped, so every facility should be analyzed to consider where activities and programs can be housed and to develop a plan for accessibility to these programs.

A final concern to be addressed in evaluating each facility is the capacity. The local school district will have a procedure or formula to be used which takes into account differences in local learning programs and in the efficiency of the facilities, as well as increased space allocations for older children to reflect the growing complexity of programming and the larger size of the children. It will be necessary to consider the additional space needed for special education classes and resources, including the need for wheelchair accessibility and the necessity for small units of instruction for some handicapped children.

Parallel with facility analysis is the determination of financial resources available for capital outlay projects. Funding may be either local or state. If state funds are available, they may be in the form of a regular capital outlay allotment or they may require an application for a specific use. Some states are considering or have already allocated funds specifically for projects to improve accessibility.

Local funding usually falls into one of three categories: LEA funds specifically designated for capital outlay (but such funds may not be sufficient even in districts where available); operating (i.e., general) fund dollars transferred into the capital outlay fund in the case of a relatively small, one-time expenditure; and a locally-voted tax issue for construction funds (possible in most school districts, but increasingly difficult to pass in recent years).

Funding may also be available through federal assistance programs, foundations, or community organizations. To determine what funding sources are possible in individual cases, two questions must be answered: What funding sources are available for capital outlay? What is the likelihood of obtaining funding support?

Needs-Resources Synthesis

By this time, the facility-related situation should be well documented. Needs have been identified in terms of both programming and enrollments; resources, including existing facilities and funds to expand or modify them, have been determined. The next step is to synthesize these needs and resources into a plan for the next five years and beyond.

In most LEAs, there may be a number of alternative approaches to match needs and resources. Each of these should be identified, and the few that seem most promising selected for a more detailed analysis. This includes identification of the advantages, disadvantages, and implications associated with each alternative.

The final step is to develop a detailed plan that may involve one of the alternatives or a composite of the best aspects of several alternatives. This plan should include a review of data relating to needs, resources, and contemplated alternatives, time schedules, cost estimates, and funding sources.

Participation

The master plan for facilities should be developed with broad-based participation that includes educators, parents, and community members who can contribute their points of view and expertise in developing the statement of desired learning programs and in assessing alternative plans. A broad-based planning committee will improve the quality of the plan by presenting diverse points of view. In addition, a community-oriented planning committee will aid in selling the plan to the rest of the community to secure public commitment and support. It will also be appropriate and beneficial to involve handicapped individuals on the planning committees.

Accessibility Planning

In terms of accessibility, the plan should identify in detail—with preliminary and interim steps—how access to all programs and activities is going to be achieved. A meaningful approach would involve the use of a chart showing both present and planned accessibility. The specific steps to be taken should be part of the general plan for facilities, but for ease of identification it is advisable to note those steps in the plan directed at accessibility.

As an outgrowth of the master plan for facilities, one or more major construction projects may be required. These projects might include provision of new facilities and significant additions and renovations. They should be identified in general terms as part of the master plan process, outlining the size of the student population, general learning program, ages of students to be served, and projected costs.

Functional Requirements

The next step in planning is the development of education specifications that document for an architect the functional requirements for the new or modified facility. Education specifications include two major components: First, an overview of the learning program to be offered should be described. In many cases, this can be taken from the master plan and possibly expanded to include more details so that the architect will understand what is to go on in the facility.

The second component is more critical. Each space in the planned facility should be described in a functional way with information broken down into categories such as the following:

1. *Location*—the relationship of one space to others in the facility and to the outdoors;
2. *Capacity*—the number of individuals to be accommodated;
3. *Activities*—regularly scheduled uses.

All three kinds of information are important, but the activities section will be the most time-consuming and difficult to prepare.

This approach provides information to define the problem clearly for the architect, while forcing the school staff to consider seriously exactly what is to actually take place in the proposed project. Spaces will not necessarily be developed as they have been in the past or in other projects, but they can be constructed or adapted to accommodate the desired program.

The general program description might mention that the ANSI standards are to be applied throughout the facility; however, this should not be necessary since all states now require accessibility. Nevertheless, it is important to check proposed plans against the requirements described in Part III to be sure accessibility will be achieved—and in a reasonable way.

Architects need to design not only appropriate restrooms, elevators, ramps, door sizes, and similar general facilities, but they must also be given guidance for special needs such as insuring that the chemistry lab includes a station or two usable from a wheelchair. Accessibility to a performance stage often is overlooked, particularly where the stage is located in the same room as the cafeteria as is often the case in elementary schools. Cafeteria serving lines are often not accessible, but minor modifications, at little or no ex-

pense, can be devised. Certain interior design factors, such as lighting, acoustical ceilings, and carpets, may also be considered where they promote accessibility.

It is the responsibility of the education administrator to review all architectural plans in conjunction with consultant specialists, to ensure that the needs of the handicapped have been addressed adequately.

Staff Involvement

The staff that will use a facility should be involved in the development of education specifications, or if the staff is not yet known, representatives of the projected staff should be utilized. While the process may be time-consuming, experience indicates that teachers are willing to devote the required effort, recognizing it as an opportunity to achieve a better teaching-learning environment.

Importance of Maintenance

It is of little use to develop and implement plans for accessibility if facilities are not maintained. Good maintenance practices are essential for handicapped students' safety and mobility. In addition, good maintenance protects the investment made in the facilities and influences the morale of the pupils and the staff. Finally, maintenance or the lack of it will color the public's impression of education. Some illustrations will demonstrate the importance of maintenance:

1. Ramps, while normally much safer than stairs, even for the nonhandicapped, can become quite dangerous if slick surfaces are used especially when they become wet. A recessed carpet insert at doorways can collect most moisture from shoes, and a nonskid surface on the ramp itself further increases protection.
2. Handicapped accommodations in restrooms typically include a single hand basin and water closet. If supplies such as soap, towels, or toilet paper are inadequate, many handicapped will not be able to use the facility appropriately.
3. Door closers often are required by fire code and for other practical reasons. These should be installed with the appropriate setting so as to allow proper closing of the door, without requiring such strength to open as to preclude use by the handicapped. Door closers need periodic adjustment to continue achieving both objectives.
4. Designated handicapped parking places and ramped curbs are needed in parking lots. These become somewhat meaningless, if not useless, when the lot is allowed to deteriorate so that a wheelchair cannot be used. Potholes, breaks in the pavement, and similar deficiencies must be corrected.
5. In addition, signs designating parking places for the handicapped are often destroyed or defaced and may need to be fixed or replaced. Another hazard in parking areas is failure to remove snow and ice in parking places and on ramps.
6. Removal of raised numbers or letters at entrances and on elevators can create difficult and sometimes dangerous situations for the visually-impaired person. These must be checked regularly and replaced immediately if damaged.
7. Auditory and visual warning devices need periodic inspection. Because the non-handicapped can perceive either system, failure in a part of the system may go unnoticed without specific check-ups.

Dozens of illustrations could be added. The important point is that the handicapped are particularly vulnerable to inadequate maintenance inside and outside buildings. Achieving accessibility once is not enough; facilities must be cleaned and maintained for continuing use by the handicapped.

The most effective way to achieve the level of maintenance needed is to develop daily, weekly, monthly, and seasonal work schedules which identify the specific tasks to be accomplished at each period. The tasks can be assigned approximate time allotments so that the staff has an idea of the amount of time needed for each task. Within a daily schedule, there should be provision for a few weekly, monthly, or seasonal activities each day.

Included within this schedule should be the kind of tasks essential to the handicapped indicated by the illustrations cited above. On a daily basis, ramps must be cleaned, snow and ice removed, and restroom supplies checked. Weekly inspections seem appropriate to determine effects of vandalism and warning device malfunctioning, although problems noted at other times should be fixed immediately if safety is at stake. Examination of parking lots, sidewalks, and ramp surfaces to detect developing problems could be made monthly.

A well-developed maintenance schedule will minimize the disruption created by staff absences or delays and will allow the handicapped to function with continued effectiveness.

Summary

The mechanisms for achieving accessibility exist and have been functioning for some time. Rather than creating a structure focusing on the handicapped, it is more desirable to view accessibility as one dimension of facilities planning. It would thus be a consideration in developing a master plan, in writing educational specifications for a particular project, and in maintaining existing facilities. Accessibility requirements are outlined in the next section. By starting to plan now, LEAs will be able to implement accessibility plans effectively to meet these requirements.

III. SPECIFIC REQUIREMENTS FOR ACCESSIBILITY

Common Questions About Accessibility Answered in Part III:

1. **What is required by the current ANSI standards?**
2. **What are in the proposed revised ANSI standards?**
3. **Do the standards relate to the site and furnishings as well as to the building?**
4. **Are the standards prescriptive or functional?**

As noted earlier, the American National Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped—known as ANSI A117.1—was initially approved in 1961 and reaffirmed in 1971. In 1974, the U.S. Department of Housing and Urban Development sponsored two years of research to revise the standard and extend it to include residential environments. The result of that project was ANSI A117.1-1979, a version that was published in late Spring 1979 and made available to NASDSE for this publication. If consensus is reached on the new standards, they will be approved probably by the end of 1979.

Meanwhile, the original ANSI standards remain in force wherever they are currently applied, including serving as the standard for new and existing school facilities. Therefore, the first part of this Section presents paraphrased excerpts of requirements in ANSI A117.1-1961 (reaffirmed 1971).

The new ANSI standards are based on comprehensive human performance factors testing and extensive professional and public review. It is anticipated that they will eventually form the basis for future federal, state, and municipal codes and statutes and for private building, as well as for meeting Section 504 requirements. Because they thus represent a goal toward which facilities planning should be aiming, as well as describing in more detail many aspects of a barrier-free environment, they also are excerpted in this Section. The Accessibility Checklist in Appendix B uses the terminology and requirements of the revised standards so that facility and building surveys can plan for future needs more effectively.

Functional Standards

As one reviews the ANSI standards, it is obvious that they are presented in a highly prescriptive format rather than in a functional format. Functional standards describe a requirement in terms of intended outcomes. Prescriptive standards describe a single, mandated solution that will achieve an intended outcome typically without identifying that outcome.

For example, requiring handrails to extend 18 inches beyond the bottom and top of stairs is a prescriptive standard. To be functional, the standard would specify that handrails be so designed at the top and bottom of the stairs as to indicate to those with visual impairment where the stairs begin and end.

Prescriptive standards may not always recognize the possibility of new, creative solutions to problems or concerns. Their advantage is that they are easy to enforce and they do not require special interpretation. Either the handrail extends 18 inches or it does not. While functional requirements demand more on the part of planners and those charged with enforcement, they could be of more benefit to the handicapped in the long run. The ANSI standards set the minimum requirement for specifications, but they can be adjusted upward to move toward more functional requirements as the need arises to meet certain desired outcomes, so long as they result in equal or better accessibility for handicapped students.

Requirements Based On ANSI A117.1(1961)

Site

Grading

1. The site must be graded so as to allow the handicapped to enter a facility.
2. Site development may require significant alteration of existing topography.

Parking Lots

1. Parking spaces for the handicapped should be set aside and located near the facility entrance.
2. The number of parking spaces should be determined on the basis of facility use by the handicapped but should probably be not less than 2 percent of all spaces or at least one space.
3. Parking spaces should be arranged so that the handicapped do not need to pass behind parked vehicles to reach the facility.
4. Parking places should be identified with a sign.
5. A parking space for the handicapped should be 12 feet wide to allow for wheelchairs to be operated between cars.

Walks and Curbs

1. Walks should be 48 inches wide.
2. Walks should be continuous without steps or abrupt level changes; they should also have a gradient of not more than 5 percent. (Since walks will not have handrails or be protected from the elements, it is desirable to use a smaller gradient. Walks near the maximum-prescribed gradient or of considerable length should have level areas at regular intervals to allow rest.)
3. Walks should have a nonslip surface.
4. Where walks meet other walks, drives, parking lots, or streets, they should blend to a common level. Curbs should not necessarily be eliminated completely since they provide a safety feature for some.
5. If a door swings out onto or toward a walk, there should be a 5 foot x 5 foot platform available to allow for the door. The platform should extend at least 1 foot beyond each side of the door, meaning that doors wider than 3 feet will require larger platforms.
6. If the door swings into the building, the level platform must still be 5 feet wide and extend 1 foot on either side of the door, but it needs to be only 3 feet deep.

General Interior Consideration

Levels of Facility

1. All levels of a facility must be accessible to the handicapped.
2. Accessibility can be accomplished either by having only one level or by providing access from one level to another through the use of approved ramps or elevators.

Ramps

1. Ramps inside buildings should have a gradient of 1 foot rise in 12 feet, (or 8.33 percent) on 4 degrees 50 minutes.
2. Ramps should have a handrail 32 inches above the surface of the ramp on at least one side. For places such as schools, a second, lower set of handrails should be provided if small children are to use the ramp. All handrails should extend 1 foot beyond the ends of the ramp. The extension of the handrails must be nonhazardous.
3. Ramps should have level platforms every 30 feet and whenever they turn.
4. Where a ramp meets a door, a platform is required. If the door swings out onto the ramp, the platform must be 5 feet x 5 feet and extend at least 1 foot on each side of the door. If the door swings away from the ramp, it needs to be only 3 feet deep but of the same width.
5. The surface of the ramp should be nonslip.

Entrances, Doors, and Doorways

1. At least one entrance must be accessible to the handicapped. Ideally, all entrances should be accessible since entrances also serve as emergency exits.
2. Doors must have an open clearance of at least 32 inches.
3. Doors must be operable by a single effort.
4. Doors should include a kickplate covering the bottom 16 inches so as to withstand the abuse of canes and crutches, and should be of different color and texture.
5. Low-hanging door closers that remain in the opening of the doorway when the door is open should be avoided. Door closers must not prevent the use of doors by the disabled. Time-delay door closers are recommended.
6. The floor on the inside and outside of a door should be level for a distance of 5 feet and should also be level for 1 foot on either side of the door.
7. To the extent possible, thresholds should be level.
8. Automatic doors meeting all requirements are desirable.
9. All provisions apply to both interior and exterior doors.
10. Door mats greater than ½ inch thick should be recessed into the floor.

Stairs

1. Stairs should not have square or abrupt nosing.

2. A 1 inch strip at the edge of the nosing should be of sharply contrasting color to increase visibility.

3. Stairs should have handrails on both sides at a height of 32 inches measured from the tread at the face of the riser. When the facility serves small children, a second handrail should be added at a lower height.

4. Handrails should safely extend 18 inches beyond the top and bottom step and also run continuously around a landing.

5. Steps must not have risers that exceed 7 inches.

Elevators

1. Buildings of more than three stories must have elevators that are at least 5 feet square, a rectangular shape 63 inches by 56 inches, or a rectangular shape 80 inches by 51 inches.

2. Buildings three stories or less could be served by ramps. If not, a 2,000 pound capacity elevator at least 72 inches by 44 inches is required.

3. The bottom of control panels should be no more than 4 feet from the floor; and the top 5 feet. Control panels should have tactile identification beside the buttons.

Corridors and Floors

1. Corridors should have a minimum width of 5 feet.

2. All signs, lights, and fixtures protruding into a corridor should be a minimum of 7 feet from the floor.

3. Nonslip surfaces should be utilized.

4. Access panels and manholes in floors are dangerous and should be avoided. When such are essential, barricades should be set whenever they are open and in use.

Public Telephones

1. An appropriate number of telephones given the building population—and at least one public phone—should be usable by the handicapped.

2. Such phones must not only be accessible to individuals in wheelchairs, but also include special equipment required for individuals with hearing impairment.

Water Fountains

1. An appropriate number of water fountains should be usable by the handicapped.

2. Fountains should have spouts and controls to the front, include a hand-operated control, be 36 inches from the floor, and not be placed in alcoves or recessed where wheelchairs cannot be used.

Specific Areas Within Facilities

Toilet Facilities

1. An appropriate number of toilet facilities—and not less than one for each sex and on each floor—should be modified for handicapped use.

2. A toilet stall for use by the handicapped should be as follows:

3 feet wide;

5 feet deep;

have handrails on each side—33 inches from the floor; 1½ inches on outside diameter, 1½ inches from the wall, and fastened at the end and center;

have water closet seat 20 inches from the floor; and

have doors that swing out and have a 32-inch clearance.

3. Lavatories should be mounted at standard height but with narrow aprons so that wheelchairs can roll under the sink. Hot water pipes under the sink should be wrapped so as not to burn the legs of individuals in wheelchairs.

4. Accessories such as mirrors, soap and towel dispensers, and shelving should be mounted no more than 40 inches from the floor.

5. All faucet handles and controls should be the lever type for ease of use.

6. Toilet rooms must have sufficient floor space to allow traffic including handicapped individuals.

7. Toilet rooms for male persons should have wall-mounted urinals with the opening 19 inches from the floor, and floor-mounted urinals level with the floor.

(Note: These specifications may have to be adapted for young children.)

Large Group Areas

1. Large group areas must designate at least one place and a minimum of 1 percent of all seats for use by wheelchair-confined handicapped.

2. In addition, at least one seat and a minimum of 1 percent of all seats must be such as to allow use by the handicapped with crutches or walkers.

3. Such seating for the handicapped must be an integral part of the seating plan and not segregated.

4. Large group areas include auditoriums, studios, dining halls, and the like.

Laboratories

1. Specialized laboratory areas (e.g., language and science laboratories, industrial arts shops, and home economics areas) must include appropriate stations for the handicapped.

Libraries

1. To the extent possible, library resources must be accessible.

2. It is not economically feasible to make all stacks totally accessible, so library staff should be prepared to assist persons physically unable to use the area.

Controls, Identification, and Warning System

Controls

1. Controls and switches for lights, curtains, windows, alarms, and other things, should be within reach of the wheelchair-confined handicapped.

2. To the extent possible, all controls should be stick-type levers or simple toggle-type switches.

Identification

1. Raised letters or numbers—placed beside the door and approximately 5 feet above the floor—should be used to identify rooms and offices.

2. Doors not intended for normal use and that might prove dangerous (e.g., those leading to loading docks or boiler rooms) should be identified by knurled (covered by a series of small ridges or beads) handles. Knurling can be accomplished by using a plastic, abrasive coating.

Warning Signals

1. Audible warning signals should be accompanied by simultaneous visual signals.

2. Visual signals should be accompanied by simultaneous audible signals.

proposed:

ANSI A117.1 (1979) Specifications for Making Buildings and Facilities Accesible to and Usable by Physically Handicapped People (Excerpts)

*(**Note:** Selected illustrations from the 1979 ANSI publication are shown to clarify certain requirements. Sections printed in italics are from the Appendix of the publication, which is not part of the ANSI specifications but contains additional information to help the designer understand the minimum requirements more clearly. Section and paragraph numbers have been omitted.)*

Purpose

The specifications in this standard are intended to make buildings and facilities accessible to and usable by people with such physical disabilities as the inability to walk, difficulty walking, reliance on walking aids, sight and hearing disabilities, incoordination, reaching and manipulation disabilities, lack of stamina, difficulty interpreting and reacting to sensory information, and extremes of physical size. Accessibility and usability allow a disabled person to get to, enter, and use a building or facility.

Intent

This standard is intended for adoption and enforcement by governmental building regulatory agencies at the federal, state, county, or community level. It is intended to supplement the building code or other building regulations of the administrative authority to achieve public health, safety, and welfare. The standard may also be used by nongovernmental parties as technical design guidelines or requirements to make buildings and facilities accessible to and usable by physically disabled people.

Scope

This standard applies to the following:

1. The design and construction of new buildings and facilities, including both interior and exterior rooms and spaces, site improvements, and public walks.

2. Remodeling, alteration, and rehabilitation of existing construction.

3. Permanent, temporary, and emergency conditions.

Functional Spaces and Accessible Elements

Functional spaces within buildings are those that house the major activities for which the building or facility is intended. Classrooms, lobbies, dormitory rooms, and offices are examples of functional spaces. This standard describes minimum specifications for elements that make functional space accessible. For example, it specifies minimum requirements for accessible doors, routes, seating space, etc., the elements that can be used to design accessible classrooms. Therefore, the adopting body should specify which and how many functional spaces are to be made accessible within each building type under its jurisdiction.

Reasonable Number

The standard contains specifications that call for the installation of "at least one" accessible element of a particular type. This ensures a minimal degree of accessibility, but . . . is insufficient to satisfy the need at many buildings and facilities. Hence, every specification for "at least one" is combined with a recommendation to provide a "reasonable number" of the element.

The administrative authority adopting this standard should specify reasonable numbers or should establish procedures for determining them. The actual number to be provided must be based upon many factors, including:

1. Population to be served,

2. Availability to occupants, employees, customers, and visitors,

3. Distances and time required to use the accessible elements,

4. Provisions of equal opportunity and treatment under law.

Provisions for Adults and Children

The specifications in this standard are based upon adult dimensions and anthropometrics. If buildings, facilities, or portions thereof serve children primarily, the administrative authority should adjust dimensions and other provisions to make them suitable for children.

(**Note:** "Children" refers to those below the age of 12.)

Wheelchair Passage Width

The minimum clear width for single wheelchair passage shall be 32 inches (815 mm) at a point and 36 inches (915 mm) continuously. The minimum width for two wheelchairs to pass is 60 inches (1,525 mm). The space required for a wheelchair to make a 180-degree turn is a clear space of 60 inches (1,525 mm) diameter or a T-shaped space.

Accessible Route

At least one accessible route shall be provided from public transportation stops, from accessible parking and accessible passenger loading zones, and from public streets or sidewalks to the accessible building entrance they serve. At least one accessible route shall connect accessible buildings, facilities, elements, and spaces on the site.

Ground and Floor Surfaces

Ground and floor surfaces shall be stable, firm, and relatively non-slip under all weather conditions.

Ambulant and semi-ambulant people who have difficulty maintaining balance and those with restricted gaits are particularly sensitive to slipping and tripping hazards. For such people, a stable and regular surface is necessary for safe walking, particularly on stairs. Wheelchairs can be propelled most easily on surfaces that are hard, stable, and regular. Soft, loose surfaces such as shag carpet, loose sand, and wet clay, and irregular surfaces such as cobblestone, can significantly impede wheelchair movement.

Changes in Level

Changes in level up to ¼ inch (6 mm) may be vertical and without edge treatment. Changes in level between ¼ inch and ½ inch (6 mm and 13 mm) shall be beveled with a slope no greater than 1:2.

Carpet

If a carpet or carpet tile is used, it shall be securely attached; have a firm cushion, pad, or backing or no cushion or pad; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum pile height shall be ½ inch (13 mm). Exposed edges of carpet shall be fastened to floor surfaces.

Gratings

If gratings are located in walking surfaces, they shall have spaces no greater than ½ inch (13 mm) wide in one direction.

Parking and Passenger Loading Zones

Minimum Number

If parking spaces are provided, a reasonable number but always at least one accessible space shall comply with specifications below.

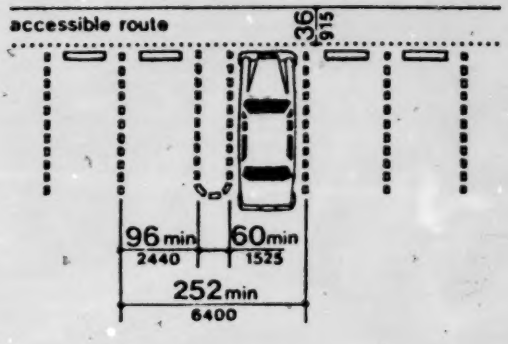
Location

Parking spaces for disabled people and accessible passenger loading zones that serve a building shall be located on the shortest possible accessible circulation route to an accessible entrance of the building.

Parking Spaces

Parking spaces for disabled people shall be at least 96 inches (2,440 mm) wide and shall have an adjacent access aisle 60 inches (1,525 mm) wide minimum.

High-top vans, which disabled people or transportation services often use, require higher clearances in parking garages than automobiles.



Dimensions of Parking Spaces

Signage

Accessible parking spaces shall be designated as reserved for the disabled by a sign showing the symbol of accessibility. Such signs shall not be obscured by a vehicle parked in the space.

Passenger Loading Zones

Passenger loading zones shall provide an access aisle at least 48 inches wide and 20 feet long (1,220 mm by 6 m) adjacent and parallel to the vehicle pull-up space. If there are curbs between the access aisle and the vehicle pull-up space, than a curb ramp shall be provided

Curb Ramps

Width

The minimum width of a curb ramp shall be 36 inches (915 mm), exclusive of flared sides. If a curb ramp is located where pedestrians must walk across the ramp, then it shall have flared sides. The maximum slope of the flare shall be 1:10. Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

Ramps

Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with this section.

Ramps are essential for wheelchair users if elevators or lifts are not available to connect different levels. However, some people who use walking aids have difficulty with ramps and prefer stairs.

Slope and Rise

The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30 inches (760 mm).

The ability to manage an incline is related to both its slope and its length. Wheelchair users with disabilities affecting arms or with low stamina have serious difficulty using inclines. Most ambulatory people and most people who use wheelchairs can manage a slope of 1:16. Many people cannot manage a slope of 1:12 for 30 feet (9m). Many people who have difficulty negotiating very long ramps at relatively shallow slopes can manage very short ramps at steeper slopes.

Landings

Ramps shall have level landings at the bottom and top of each run.

Handrails

If a ramp run has a rise greater than 6 inches (250 mm) or a horizontal projection greater than 72 inches (1,830 mm), then it shall have handrails on both sides. If handrails are not continuous, they shall extend at least 12 inches (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface. Clear space beyond handrail and wall shall be 1½ inches (38 mm). Gripping surfaces shall be continuous.

The requirements for stair and ramp handrails are for adults. When children are principal users in a building or facility, a second set of handrails at an appropriate height can assist them and aid in preventing accidents.

Edge Protection

Ramps and landings with drop-offs shall have curbs, walls, railings, or projecting surfaces that prevent people from slipping off the ramp.

Outdoor Conditions

Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces.

Stairs

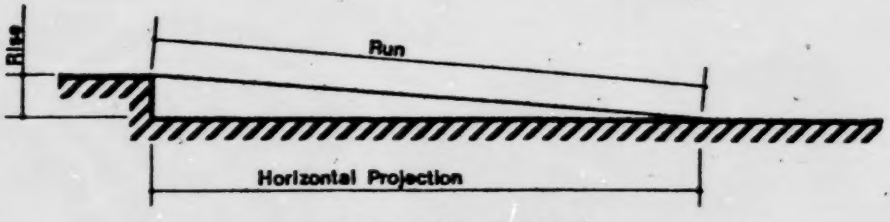
Stairs connecting levels not connected by an elevator shall comply with this section.

Treads and Risers

On any given flight of stairs, all steps shall have uniform riser heights and uniform tread widths. Stair treads shall be no less than 11 inches (280 mm) wide, measured from riser to riser.

Handrails

Stairways shall have handrails at both sides of all stairs. Handrails shall be continuous along both sides of stairs, or if not continuous shall extend at least 12 inches (305 mm) beyond the top riser and at least 12 inches (305 mm) plus the width of one tread beyond the bottom riser. At the top, the extension shall be parallel with the floor or ground surface. At the bottom, the handrail shall continue to slope for a distance of the



Components of Single Ramp Run

width of one tread from the bottom riser; the remainder of the extension shall be horizontal. Clear space between handrail and wall shall be 1½ inches (38 mm). Gripping surfaces shall be uninterrupted by newel posts, other construction elements, or obstructions.

Outdoor Conditions

Outdoor stairs and their approaches shall be designed so that water will not accumulate on walking surfaces.

Elevators

Automatic Operations

Elevator operation shall be automatic. Each car shall be equipped with a self-leveling feature that will automatically bring the car to floor landings within a tolerance of ½ inch (13 mm) under a rated loading to zero loading conditions.

Lobby Call Buttons

Call buttons in elevator lobbies and halls shall be centered at 42 inches (1,065 mm) above the floor. They shall have visual signals to indicate when each call is registered and answered. Call buttons shall be a minimum of ¾ inch (19 mm) wide.

Door Protective and Reopening Device

Elevator doors shall open and close automatically. They shall be provided with a reopening device that will stop and reopen a car door automatically if the door becomes obstructed by an object or person.

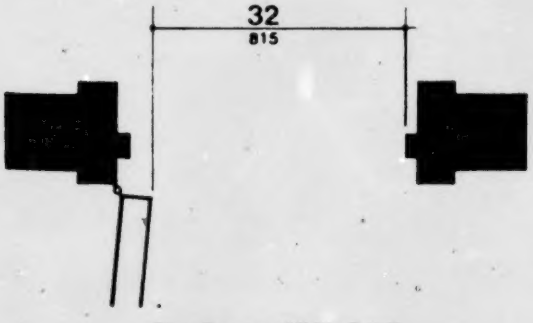
Floor Plan of Elevator Cars

The floor area of elevator cars shall provide space for wheelchair users to enter the car, maneuver within reach of controls, and exit from the car.

Doors

Clear Width

Doorways shall have a minimum clear opening of 32 inches (815 mm) with the door open 90 degrees and measured between the face of the door and the stop.



Clear Doorway Width: Detail

Thresholds at Doorways

Thresholds at doorways shall not exceed ¾ inch (19 mm) in height for exterior sliding doors or ½ inch (13 mm) for other types of doors. Raised thresholds and floor level changes at accessible doorways shall be beveled with a slope no greater than 1:2.

Thresholds and surface height changes in doorways are particularly inconvenient for wheelchair users who also have low stamina or restrictions in arm movement, because complex maneuvering is required to get over the level change while operating the door.

Door Hardware

Handles, pulls, latches, locks, and other operating devices on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist to operate. Lever-operated mechanisms, push-type mechanisms, and U-shaped handles are acceptable designs.

Some disabled persons must push against a door with their chair or walker to open it. Applied kickplates on doors with closers can reduce required maintenance by withstanding abuse from wheelchairs and canes. To be effective, they should cover the door up to a height of 16 inches (405 mm) from its bottom edge.

Door Closers

If a door has a closer, then the sweep period of the closer shall be adjusted so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.

Closers with delayed action features give a person more time to maneuver through doorways. They are particularly useful on frequently used interior doors such as entrances to toilet rooms.

Entrances

A reasonable number but always at least one principal entrance to a building or facility shall be part of an accessible route. Such entrances shall be connected by an accessible route to all accessible spaces or elements within the building or facility.

Drinking Fountains and Water Coolers

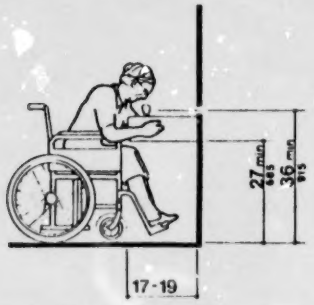
If drinking fountains or water coolers are provided, a reasonable number but always at least one shall comply with this section and shall be on an accessible route.

Spout Height

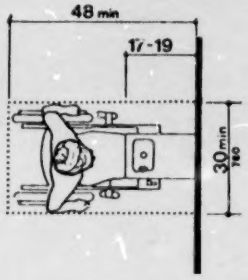
Spouts shall be no higher than 36 inches (915 mm), measured from the floor or ground surfaces to the spout outlet.

Spout Location

The spouts shall be at the front of the unit and shall direct the water flow in a trajectory that is parallel or nearly parallel to the front of the unit. The spout shall provide a flow of water at least 4 inches (100 mm) high so as to allow the insertion of a cup or glass under the flow of water.



Spout Height and Knee Clearance



Clear Floor Space

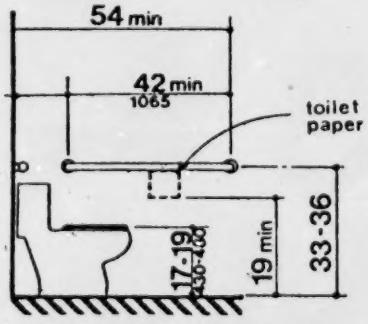
Clearances

Wall- and post-mounted cantilevered units shall have a clear knee space between the bottom of the apron and the floor or ground at least 27 inches (685 mm) high, 30 inches (760 mm) wide, and 17 inches to 19 inches (430 mm to 485 mm) deep. Such units shall also have a minimum clear floor space 30 inches by 48 inches (760 mm by 1,220 mm) to allow a person in a wheelchair to approach the unit facing forward. Free-standing or built-in units not having a clear space under them shall have a clear floorspace at least 30 inches by 48 inches (760 mm by 1,220 mm) that allows a person in a wheelchair to make a parallel approach to the unit.

Water Closets

Height

The height of water closets shall be 17 to 19 inches (430 mm to 485 mm), measured to the top of the toilet seat.



Preferences for toilet seat heights vary considerably among disabled people. Higher seat heights may be an advantage to some ambulatory disabled people but a disadvantage for wheelchair users and others. Toilet seats 18 inches (455 mm) high seem to be a reasonable compromise. Thick seats and filler rings are available to adapt standard fixtures to these requirements.

Flush Controls

Flush controls shall be hand operated. Controls for flush valves shall be mounted on the wide side of toilet areas no more than 44 inches (1,120 mm) above the floor.

Flush valves and related plumbing can be located behind walls or to the side of the toilet, or a toilet seat lid can be provided if plumbing fittings are directly behind the toilet seat. Such designs reduce the chance of injury and imbalance caused by leaning back against the fittings.

Dispensers

Toilet paper dispensers shall be installed within reach.

Stalls

Location

Accessible toilet stalls shall be on an accessible route.

Size and Arrangement

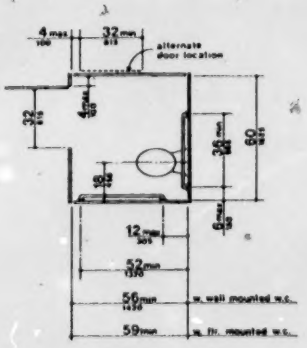
The size and arrangement of toilet stalls shall comply with either Figure A or B. Toilet stalls with a minimum depth of 56 inches (1,420 mm) or 66 inches (1,675 mm) shall have wall-mounted water closets. If the depth of toilet stalls is increased at least 3 inches (75 mm), then a floor-mounted water closet may be used. Arrangements for stalls may be reversed to allow either a left- or a right-hand approach.

Grab Bars

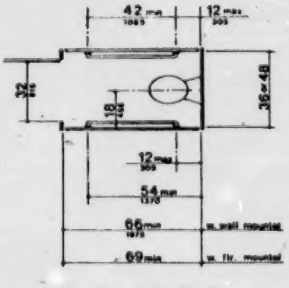
Grab bars shall be provided complying with length and positioning shown (in figure).

Doors

Toilet stall doors shall comply with stated door standards.



A. Standard Stall



B. Alternate Stall

Urinals

Height

Urinals shall be stall-type or wall-hung with an elongated rim at a maximum of 17 inches (430 mm) above the floor.

Clear Floor Space

A clear floor space 30 inches by 48 inches (760 mm by 1,220 mm) shall be provided in front of urinals to allow forward approach. This clear space shall adjoin or overlap an accessible route.

Flush Controls

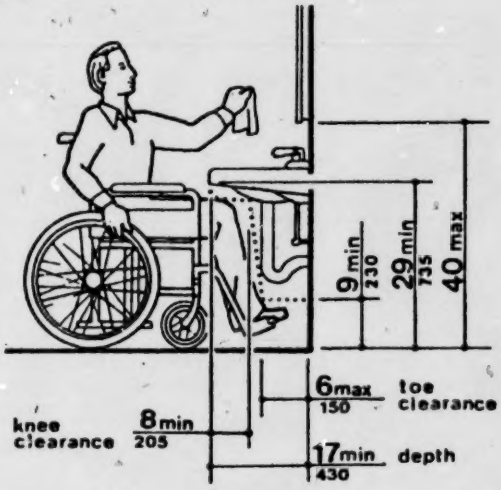
Flush controls shall be hand operated and shall be mounted no more than 44 inches (1,120 mm) above the floor.

Lavatories and Mirrors

The requirements of this section shall apply to lavatory fixtures, vanities, and built-in lavatories.

Height and Clearances

Lavatories shall be mounted with a clearance at least 29 inches (735 mm) from the floor to the bottom of the apron. Knee and toe clearances shall comply with Figure.



Lavatory Clearance

Clear Floor Space

A clear floor space 30 inches by 48 inches (760 mm by 1,220 mm) shall be provided in front of a lavatory to allow forward approach, and shall extend a maximum of 19 inches (484 mm) underneath the lavatory.

Exposed Pipes and Surfaces

Hot water and drain pipes under lavatories shall be insulated or otherwise covered. There shall be no sharp or abrasive surfaces under lavatories.

Faucets

Lever-operated, push-type, and electronically controlled mechanisms are examples of acceptable designs. Self-closing valves are allowed if the faucet remains open for at least 10 seconds.

Mirrors

Mirrors shall be mounted with the bottom edge no higher than 40 inches (1,015 mm) from the floor.

If mirrors are to be used by both ambulatory people and wheelchair users, then they must be at least 74 inches (1,880 mm) high at their topmost edge. A single full-length mirror can accommodate all people, including children.

Alarms

If emergency warning systems are provided, they shall include both audible alarms and visual alarms.

Audible Alarms

If provided, audible emergency alarms shall produce a sound that exceeds the prevailing equivalent sound level in the room or space by at least 15 decibels or that exceeds any maximum sound level with a duration of 30 seconds by 5 decibels, whichever is louder. Sound levels for alarm signals shall not exceed 120 decibels.

Audible emergency signals must have an intensity and frequency that can attract the attention of individuals who have partial hearing loss.

Visual Alarms

If provided, illuminated emergency exit signs shall flash as a visual emergency alarm in conjunction with audible emergency alarms. If such systems use electricity from the building as a power source, then they shall be installed on the same circuit as audible emergency alarms.

Tactile Warnings on Walking Surfaces

Tactile warning textures on walking surfaces shall consist of exposed aggregate concrete, rubber or plastic cushioned surfaces, raised strips, or grooves. Textures shall contrast with that of the surrounding surface. Grooves may be used indoors only.

Tactile Warnings on Doors to Hazardous Areas

Doors that lead to areas that might prove dangerous to a blind person (e.g., doors to loading platforms, boiler rooms, stages, etc.) shall be made identifiable to the touch by a textured surface on the door handle, knob, pull, or other operating hardware. This textured surface may be made by knurling or roughening or by a material applied to the contact surface. Such textured surfaces shall not be provided for emergency exit doors or any doors other than those to hazardous areas.

Tactile Warnings at Stairs

All stairs, except those in dwelling units or in enclosed stair towers, shall have a tactile warning at the top of stair runs.

Tactile Warnings at Hazardous Vehicular Areas

If a walk crosses or adjoins a frequently used vehicular way and if there are no curbs, railings, or other elements detectable by a person who has a severe visual impairment separating the pedestrian and vehicular areas, then the boundary between the areas shall be defined by a continuous 36 inch (915 mm) wide tactile warning texture.

Standardization

Textured surfaces for tactile warnings shall be standard within a building, facility, site, or complex of buildings.

Signage

All signage that provides emergency information or general circulation directions, or identifies rooms and spaces shall comply with this section.

In building complexes where finding locations independently on a routine basis may be a necessity (e.g., college campuses), tactile maps or prerecorded instructions can be very helpful to visually impaired people . . . Landmarks that can easily be distinguished by visually impaired individuals are useful as orientation cues. Such cues include changes in illumination level, bright colors, unique patterns, wall murals, location of special equipment, or other architectural features (e.g., an exterior view).

Character Proportion

Letters and numbers on signs shall have a width-to-height ratio of between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.

Color Contrast

Characters and symbols shall contrast with their background—either light characters on a dark background or dark characters on a light background.

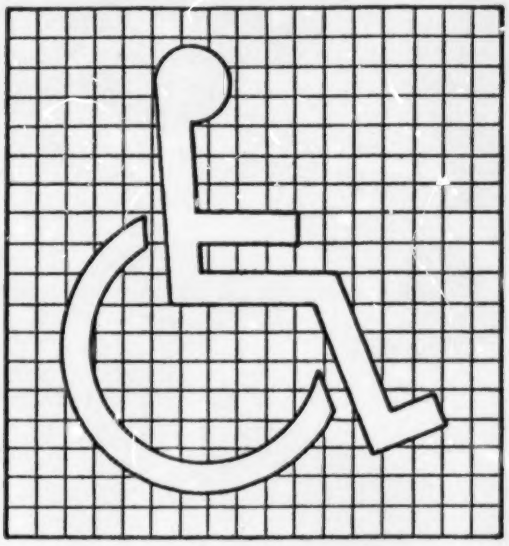
The greatest readability is usually achieved through the use of light colored characters or symbols on a dark background.

Raised or Indented Characters or Symbols

Letters and numbers on signs shall be raised or incised 1/32 inch (0.8 mm) minimum and shall be sans serif characters. Raised characters or symbols shall be at least ⅝ inch (16 mm) high but no higher than 2 inches (50 mm). Indented characters or symbols shall have a stroke width at least ¼ inch (6 mm). Symbols or pictographs on signs shall be raised or indented 1/32 inch (0.8 mm) minimum.

Symbol of Accessibility

If accessible facilities are identified, then the international symbol of accessibility shall be used. The symbol shall be displayed as shown in the figure.



Proportions

Display Conditions

Telephones

If public telephones are provided, they shall comply with this section.

Clear Floor or Ground Space

A clear floor or ground space at least 30 inches by 48 inches (760 mm by 1,220 mm) that allows either a forward or parallel approach by a person using a wheelchair shall be provided at telephones. Bases, enclosures, and fixed seats shall not impede approaches to telephones by people who use wheelchairs. Telephones mounted diagonally in a corner that require wheelchair users to reach diagonally shall have the highest operable part no higher than 54 inches (1,370 mm) above the floor.

Enclosures

If telephone enclosures are provided they shall not reduce the clear floor space required. Entrances to enclosures shall have a clear opening at least 30 inches (760 mm) wide.

Cord Length

The cord from the telephone to the handset shall be at least 29 inches (735 mm) long.

In localities where the dial-tone first system is in operation, calls can be placed at a coin telephone through the operator without inserting coins. The operator button is located at a height of 46 inches (1,170 mm) if the coin slot of the telephone is at 54 inches (1,370 mm). A generally available public telephone with a coin slot mounted lower on the equipment would allow universal installation of telephones at a height of 48 inches (1,220 mm) or less to all operable parts.

Seating, Tables, and Work Surfaces

Minimum Number

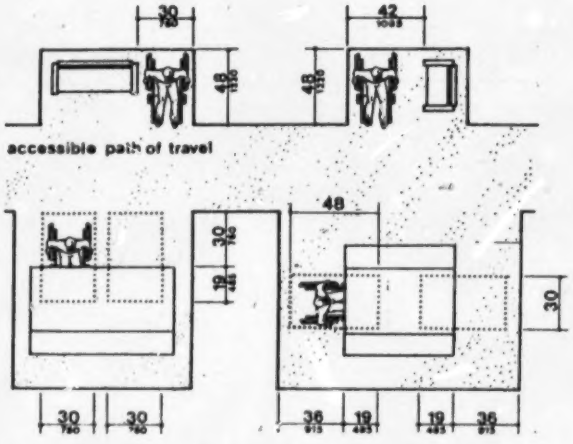
If fixed or built-in seating, tables, or work surfaces are provided in accessible spaces, a reasonable number but always at least one shall comply with this section.

Seating

If seating spaces for people in wheelchairs are provided at tables, counters, or work surfaces, clear floor space shall be provided (that) shall not overlap knee space more than 19 inches (485 mm). Knee spaces at least 27 inches (685 mm) high, 30 inches (760 mm) wide, and 19 inches (485 mm) deep shall be provided.

Height of Work Surfaces

The top of tables and work surfaces shall be from 28 inches to 34 inches (710 mm to 865 mm) from the floor or ground.



Minimum Clearances for Seating and Tables

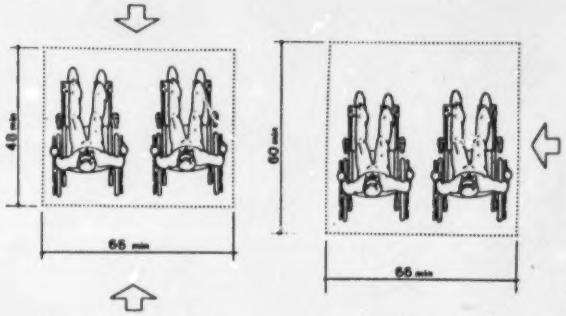
Assembly Areas

Minimum Number

Assembly areas shall have a reasonable number but no less than two locations for wheelchair users in each assembly area that complies with this section. Assembly areas shall also have a listening system to assist a reasonable number but no fewer than two people with severe hearing loss in the appreciation of audio presentations.

Size of Wheelchair Locations

Each wheelchair location shall provide minimum clear ground or floor spaces as shown in figure and shall accommodate two people in wheelchairs.



Forward or Rear Access *Side Access*

Placement of Wheelchair Locations

Wheelchair areas shall be an integral part of any fixed seating plan and shall be dispersed throughout the seating area. They shall adjoin an accessible route that also serves as a means of egress in case of emergency and shall be located to provide sight lines comparable to those for all viewing areas.

Surfaces

The ground or floor at wheelchair locations shall be level.

Access to Performing Areas

An accessible route shall connect wheelchair seating locations and performing areas. Performing areas include stages, arena floors, dressing rooms, locker rooms, and other spaces used by performers.

APPENDIX A Annotated Bibliography

American Institute of Architects. **A Bibliography of Information for Facility Planning for Special Education.** American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. 20006. 1976. $4.00.

A compilation of materials available related to facility planning, with many focusing on architectural planning and design issues.

American National Standards Institute, Inc., **Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.** ANSI A117.1 (1979). American National Standards Institute, Inc., 1430 Broadway, New York, N.Y. 10018. (The Public Review Draft is available for $5.00. Check ANSI for information on final approved version. Full text of ANSI A117.1-1961 is available without charge from President's Committee on Employment of the Handicapped, Washington, D.C. 20210.

American Society of Landscape Architects Foundation and U.S. Department of Housing and Urban Development, **Barrier-Free Site Design.** U.S. Government Printing Office, Washington, D.C. 20402, 1976. 82 pgs. $2.30.

This publication is directed toward planners of outdoor spaces. Section 1 provides background information on barrier-free legislation, costs associated with barrier-free construction, and essential statistics on the handicapped population. Section 2 focuses on making outdoor spaces accessible for handicapped persons. The document also provides other information sources for planners of barrier-free facilities.

Architectural and Transportation Barriers Compliance Board. **Resource Guide to Literature on Barrier-Free Environments.** The Architectural and Transportation Barriers Compliance Board, 330 C St., S.W., Washington, D.C. 20201, 1977. 223 pgs. Free.

This excellent resource guide identifies 1500 references concerning the handicapped and their environment. It has sections devoted to: Architecture; Transportation; Parks and Recreation; Standards, Legislation, and Legal Matters; General Statistics; Human Factors Research; Disabilities—by type; Aids and Devices for handicapped persons; Information Resources and Audiovisual Aids; and Travel Guides. Also listed are periodicals and organizations that are concerned with barrier-free environment and services for the handicapped or elderly persons.

Association of Physical Plant Administrators of Universities and Colleges, **Creating an Accessible Campus,** edited by Maggie Coons and Margaret Milner. APPA, Suite 250, 11 Dupont Circle, Washington, D.C. 20036, 1978. 143 pgs. $12.50.

An illustrated large-size publication with articles on Section 504, facilities inventory and survey, designing for accessibility, instructional aids for program accessibility, resource utilization and funding sources.

Cotler, Stephen R., and Alfred J. deGraff. **Architectural Accessibility for the Disabled on College Campuses.** Available from Architectural and Transportation Barriers Compliance Board, 330 C St., S.W., Washington, D.C. 20201, 1976, 133 pgs. (Single copy free)

This publication describes the ANSI standards as they relate to the college environment. In each case, a rationale, a policy, and illustrations are provided. The publication is an explicit and easy-to-use reference tool.

Council of Educational Facilities Planners. **Guide for Planning Educational Facilities.** Council of Educational Facilities Planners, Columbus, Ohio, 1976, 176 pgs. $17.50.

This publication describes the processes involved in planning educational facilities. While it does not include extensive treatment of the accessibility legislation, it does provide extensive descriptions of the processes and products associated with comprehensive educational facilities planning.

Easter Seal Society for Crippled Children and Adults of Washington. **Job Ready.** 521 2nd Ave., West, Seattle, WA 98119. 1978 12 pgs. 86¢ prepaid; $1.16 if billed.

Illustrated leaflet describing access features, with sketches and photographs.

Educational Research Service Information Aid. **Barrier Free School Facilities for Handicapped Students.** Education Research Service, Inc., 1800 N. Kent St., Arlington, Va. 22209, 1977. 90 pgs. $7.00.

This ERS Information Aid has brief introductory comments followed by a number of checklists useful in evaluating the accessibility of public school buildings. The major portion of the document includes explanations of specific requirements for accessibility. Many of the requirements are illustrated. The document also includes an extensive bibliography.

Greater Kansas City Council of Handicapped Citizens. **Access.** 3011 Baltimore. Kansas City, Mo. 64108. 1974. 16 pgs.

Kliment, Stephen. **Into the Mainstream—A Syllabus for a Barrier-free Environment.** American Institute of Architects, 1735 New York Ave., Washington, D.C. 20006. 1975. 44 pgs. $1.50.

This document focuses on barrier-free design. It includes a review of codes, standards, and legislation related to accessibility. Barriers faced by handicapped persons are reviewed, and suggestions for barrier-free facilities are offered. A sample questionnaire is included for use by communities determining the accessibility of their buildings.

Mace, Ronald, and Betsy Laslett. **An Illustrated Handbook of the Handicapped Section of the North Carolina State Building Code.** North Carolina Department of Insurance, Special Office for the Handicapped, Raleigh, N.C. 27611 (P.O. Box 26387), 1974, reprinted 1976. 141 pgs. $2.00.

These guidelines have been used by many groups and in other states in updating and modifying facilities for accessibility.

National Association of State Directors of Special Education. **A Planning Guide for the Development and Implementation of Full Services for all Handicapped Children.** NASDSE, 1201 16th St. N.W., Washington, D.C. 20036. 1976. 36 pgs. $3.00.

This guide describes the full service planning model developed in Prince William County, Virginia. It consists of three major components: a full services model program, statements reflecting the responsibilities for special education services, and forms for assessing current programs and developing new program elements. While this publication does not deal with the issue of accessibility to programs per se, it describes the comprehensive planning required for program and is well illustrated with flow charts.

National Association of State Directors of Special Education. **The Rehabilitation Act: An Analysis of the Section 504 Regulation and Its Implications for State and Local Education Agencies.** NASDSE, 1201 16th St. N.W., Washington, D.C. 20036. 1977. 12 pgs. $2.50.

This brief publication describes in detail the provisions of the regulation for Section 504 of the Rehabilitation Act of 1973, and implications of each component of the regulation are clearly spelled out. Included are a number of provisions relating directly to barrier-free educational facilities.

National Center for a Barrier Free Environment. **Opening Doors.** National Center for a Barrier Free Environment, 7th and Florida Avenues, N.E., Washington, D.C. 20002. 1978. 32 pgs. $3.00.

This is a handbook on making facilities accessible to handicapped people. It explains laws relating to accessibility, offers strategies for grass roots action and suggestions on potential funding sources for barrier removal, illustrates graphically the elements of an accessible system, and gives design and information resources. Also has available: free eight-page brochure, ***Tools for Accessibility,*** *with selected list of resources for barrier-free design information;* ***Accessibility Assistance,*** *a directory of consultants on barrier-free design, including architects, landscape architects, and interior designers (1979, 186 pgs. $3.25).*

Ohio Governor's Committee on Employment of the Handicapped. **Access for All.** 4656 Heaton Rd., Columbus, Ohio 43229. 1979 (rev.) 192 pgs. $5.00.

Illustrated handbook of barrier-free design with extensive accessibility checklist.

President's Committee on Employment of the Handicapped, 1111 20th St., N.W., Washington, D.C. 20210.

Free publications available include: ***Guilty Buildings,*** *8-page layman's guide on problems encountered by disabled in buildings and facilities;* ***Architectural Checklist: for Colleges and Universities; People Just Like You,*** 36-page activities guide for teachers in regular classrooms on teaching non-handicapped students about disabilities and creating awareness of problems and capabilities of disabled children; ***Bibliography of Secondary Materials for Teaching Disabled Students,*** *listing curriculum materials, resource centers, information retrieval systems, and professional associations to help secondary teachers devise course work to meet educational needs of disabled students.*

Williams, Robert A. L., AIA. **Barrier Free Design Graphics.** Michigan Commission on Employment of the Handicapped, Committee for a Barrier Free Environment, Michigan Department of Labor, Lansing, MI 48926. 1975. 23 pgs.

Graphic illustrations of Michigan Construction Code Commission "General Rules" applicable to making facilities accessible for use by the physically handicapped and aged.

APPENDIX B Accessibility Checklist

The following checklist, adapted from the 1979 ANSI standards, is suggested as a guide for evaluating and planning a facility and site in terms of accessibility for the handicapped. Such an evaluation should be completed for each facility and updated periodically. Specific items may be altered to meet particular characteristics or requirements of a school building or school system.

Name of Building _____

Address _____

Person completing checklist _____ Date _____

Each question requires a **yes, no,** or **not applicable** (N/A) response, to be indicated by a check in the appropriate blank. If the evaluator wishes to provide additional comments or recommendations on a particular item, an asterisk should be placed beside the check. The comments can then be recorded on a separate sheet and attached to the checklist. The comments should be lettered and numbered to correspond with the checklist item addressed.

	Yes	No	N/A
A. Accessible Route			
1. Is at least one accessible route provided from:			
a. public transportation stops?	____	____	____
b. accessible parking?	____	____	____
c. public streets or sidewalks?	____	____	____
2. Does at least one accessible route connect accessible buildings on the site?	____	____	____
B. Ground and Floor Surfaces			
1. Are ground and floor surfaces stable, firm, and relatively non-slip under all weather conditions?	____	____	____
2. If a carpet is used, is it attached securely, with exposed edges fastened?	____	____	____
C. Parking and Passenger Loading Zones			
1. Are there parking spaces for disabled people located near an accessible entrance?	____	____	____
2. Is each parking space at least 96 inches wide with an access aisle at least 60 inches wide?	____	____	____
3. Are designated parking spaces indicated by the international symbol of accessibility?	____	____	____
4. Do passenger loading zones provide an access aisle at least 48 inches wide and 20 feet long alongside the pull-up space for vehicles?	____	____	____
D. Curb Ramps			
1. Are curb ramps at least 36 inches wide?	____	____	____
2. Are curb ramps free of possible obstruction by parked vehicles?	____	____	____
E. Ramps			
1. Do ramps have a slope of no more than 1:12 (that is, one foot rise for every 12 feet of horizontal run) and a maximum rise of 30 inches?	____	____	____
2. Do ramps have level landings at bottom and top of each run?	____	____	____
3. Are there handrails on both sides, either continuous or extending at least 12 inches beyond the top and bottom?	____	____	____
4. If the building is used mostly by children, is there a lower set of handrails to assist them?	____	____	____
5. Do ramps have edge protection to prevent people from slipping off?	____	____	____
6. Are outdoor ramps designed so that water will not accumulate on walking surfaces?	____	____	____

	Yes	No	N/A
F. Stairs			
1. Do all steps have uniform riser heights and tread widths?	____	____	____
2. Are stair treads more than 11 inches wide?	____	____	____
3. Do stairways have handrails at both sides, continuous or extending at least 12 inches beyond the top riser and at least 12 inches plus the width of one tread beyond the bottom riser?	____	____	____
3. Are gripping surfaces of handrails unobstructed?	____	____	____
G. Elevators			
1. If there is an elevator, is it automatic and self-leveling?	____	____	____
2. Are call buttons 42 inches above the floor?	____	____	____
3. Do call buttons have visual signals?	____	____	____
4. Do elevator doors open and close automatically, and reopen if there is an obstruction?	____	____	____
5. Do the elevator cars provide space for wheelchairs to enter, reach the controls, and exit?	____	____	____
H. Doors			
1. Do doorways have a minimum clear opening of 32 inches?	____	____	____
2. Are thresholds at doorways less than a half-inch (or ¾ inch for exterior sliding doors)?	____	____	____
3. Are raised thresholds and floor levels at doorways beveled with a slope no greater than 1:2?	____	____	____
4. Are door handles, pulls, latches, and locks easy to grasp with one hand?	____	____	____
5. Do kickplates on doors with closers cover the door up to 16 inches from the bottom edge?	____	____	____
6. If a door has a closer, is it adjusted to have a suitable delayed action?	____	____	____
I. Entrances			
1. Is at least one principal entrance part of an accessible route?	____	____	____
2. Is the accessible entrance connected by an accessible route to all accessible spaces in the building or facility?	____	____	____
J. Drinking Fountains			
1. If drinking fountains are provided, is at least one on an accessible route?	____	____	____
2. Is the spout 36 inches or lower from the floor, in front of the unit, and providing a flow of water at least 4 inches high?	____	____	____
3. Do wall- and post-mounted units have a clear knee space and minimum clear floor space to allow approaches by a wheelchair?	____	____	____
K. Water Closets			
1. Are water closets 17 to 19 inches high?	____	____	____
2. Are flush controls hand operated?	____	____	____
L. Toilet Stalls			
1. Are accessible toilet stalls on an accessible route?	____	____	____
2. Do toilet stalls meet standards of minimum depth requirements for wall-mounted water closets (56 or 66 inches) or for floor-mounted water closets (59 or 69 inches)?	____	____	____
3. Are grab bars provided?	____	____	____
M. Urinals			
1. Are urinals a maximum of 17 inches above the floor?	____	____	____
2. Is there a clear floor space 30 x 48 inches in front of the urinals to allow forward approach?	____	____	____
3. Are flush controls hand operated and mounted no more than 44 inches above the floor?	____	____	____

	Yes	No	N/A
N. Lavatories and Mirrors			
1. Are lavatories mounted with a clearance at least 29 inches from the floor to bottom of apron?	___	___	___
2. Is there a clear floor space 30 x 48 inches in front of a lavatory and extending a maximum of 19 inches underneath?	___	___	___
3. Are hot water and drain pipes under lavatories insulated or otherwise covered, with no sharp or abrasive surfaces under lavatories?	___	___	___
4. Are acceptable mechanisms used for faucets? (i.e., lever, push-type, electronic)	___	___	___
5. If a self-closing valve is used, does the faucet remain open for at least 10 seconds?	___	___	___
6. Are mirrors mounted with the bottom edge no higher than 40 inches from the floor?	___	___	___
7. If used by ambulatory people and wheelchair users, are mirrors at least 74 inches high at topmost edge?	___	___	___
O. Alarms			
1. If emergency warning systems are provided, do they include audible and visual alarms?	___	___	___
2. Do audible alarms meet decibel standards?	___	___	___
3. Do illuminated emergency exit signs flash in conjunction with audible emergency alarms?	___	___	___
4. Are there tactile warning textures on walking surfaces that contrast with textures of surrounding surface?	___	___	___
5. Are there tactile warnings on doors to hazardous areas?	___	___	___
6. Do all stairs have tactile warnings at the top of stair runs?	___	___	___
7. If there is a hazardous vehicular area, does a continuous 36-inch wide tactile warning texture indicate the boundary between pedestrian and vehicular areas?	___	___	___
8. Are all textured surfaces for tactile warnings standard within the building, facility, site or complex of buildings?	___	___	___
P. Signage			
1. Do all signs with emergency or circulation information comply with standards for proportion of characters and raised or indented characters?	___	___	___
2. Do characters and symbols contrast in color with their background (preferably light characters on a dark background)?	___	___	___
3. Is the international symbol of accessibility used to identify accessible facilities?	___	___	___
Q. Telephones			
1. Do public telephones provide a clear space at least 30 x 48 inches, with bases, enclosures and fixed seats not impeding approach by wheelchair users?	___	___	___
2. If a telephone is mounted diagonally in a corner, is the highest operable part no higher than 54 inches above the floor?	___	___	___
3. If a telephone is in an enclosure, does the entrance have a clear opening at least 30 inches wide?	___	___	___
4. Is the cord from telephone to handset at least 29 inches long?	___	___	___
R. Seating, Tables, and Work Surfaces			
1. Is there at least one fixed or built-in seating, table, or work surface provided in accessible spaces?	___	___	___
2. If seating spaces for people in wheelchairs are provided at tables, counters, or work surfaces, is there a clear floor space that does not overlap knee space more than 19 inches?	___	___	___